

**ABSTRACT OF THE DISCLOSURE**

A signal transmission system includes a first transmission unit for distributing and transmitting a downward optical signal from a downward signal transmitting unit to a plurality of downward signal receiving units, and a second transmission unit for multiplexing a plurality of upward optical signals applied thereto and transmitting the plurality of upward optical signals multiplexed, and for distributing and transmitting a downward signal applied thereto. The system also comprises a first WDM unit for applying the plurality of upward optical signals multiplexed and transmitted thereto by the second transmission unit to an upward signal receiving unit, and for applying an optical signal transmitted by an information transmitting unit, as a downward optical signal, to the second transmission unit, and a second WDM unit for applying a plurality of upward optical signal transmitted by a plurality of upward signal transmitting units to the second transmission unit, and for applying the optical signal from the information transmitting unit transmitted thereto by the second transmission unit to an information receiving unit.